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**School: Ba Sangam College**  
**Subject: Technical Drawing**

**Year/Level: 13**  
**Worksheet 9**

**Name: \_\_\_\_\_**  
**Year: \_\_\_\_\_**

Strand	Geometrical Drawing
Sub Strand	Epi-cycloid
Content Learning Outcome	Define different types of rolling wheels and state their application. Construct the rolling wheels.

**Construction of an Epicycloid**

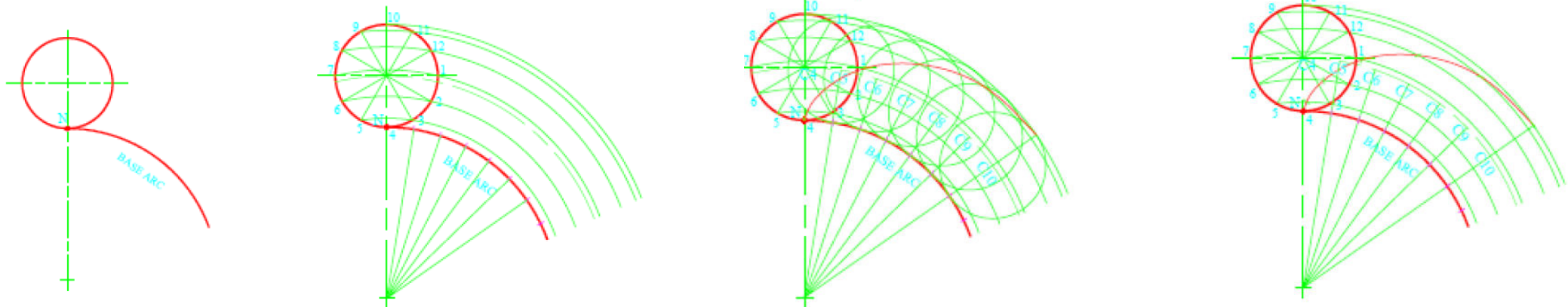
Below is a description of how to construct an **Epicycloid** for a point **N** on a circle as it rotates outside the base circle without slipping.

Step1: Draw the generating circle and the base arc from point **N** on the circumference of the generating circle.

Step 2: Divide the generating circle into 12 equal parts. Use  $\frac{1}{12}$  of the generating circle to mark on the base arc. Draw lines from the centre of the base arc to all points on the base arc.

Step 3: Extend the lines from the centre of the base arc to the centre arc to locate **C1, C2, etc.** Set the compass to the radius of the generating circle and with centers as **C1, C2, C3, etc.** inscribe arcs on the arcs drawn from each point of the generating circle in its rolling direction.

Step 4: A locus of an epicycloid for point **N** is formed by joining these new points as it rotates on the base arc without slipping.



**Activity (15 marks)**

**Given:** Rolling circle **A**, base circle **B**, point **C** and base line **XY**.

**Required:** (i) Draw the locus of point **C** as circle **A** rolls down the base circle **B** for one complete revolution.

**(10 marks)**

(ii) Continue the locus of point **C** as it rolls onto line **XY** for half a revolution.

**(5 marks)**

